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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Bodo Furchheim

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EXAMINER

DIAZ, THOMAS C

ART UNIT

PAPER NUMBER

3656

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02/24/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/674,648	Applicant(s) FURCHHEIM ET AL.	
	Examiner THOMAS DIAZ	Art Unit 3656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 December 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5 and 19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5 and 19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 October 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

This office action is in response to the reply filed on 12/03/2009.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 1 recites "a tube having non-hollow cam regions and hollow cam regions formed on the tube at positions where..." There is no support in the specification that describes what the non-hollow cam regions and the hollow cam regions are. It is therefore unclear what applicant is trying to refer to since the tube appears to be hollow through out it's length.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 3-5, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki, U.S. Patent 4,660,269.

Suzuki shows, in Figs. 1-12, a method for the manufacture of a camshaft from a tube 2, the camshaft having bearer rings 3 attached thereto, the method comprising the following steps; placing bearer rings, produced in a separate method and in correspondence with prospective locations of hollow cams on the cam shaft, in a high internal pressure forming tool 20, 21 together with the tube to be formed, whereby the bearer rings are attached by expansion of the tube in a frictional and interlocking manner, each of the bearer rings having outer surface and an inner surface, and the necessary hardness, strength, and wear resistance; subjecting the tube to axial forces and a medium under high internal pressure so that the tube expands to form said hollow cam regions wherein the diameter of the tube in said region are greater than the diameter of the tube at the non-hollow cam regions (**as best understood**, there is a hollow region seen in fig.5, to the right and left of cams which is greater in diameter than the "non-hollow" regions where bearer ring 3a are seated); and in a first method step prior to the high internal pressure forming, **regions (area near 7, 8)** of the tube which are clear of the regions in which the cams are seated are kneaded or upset such that

said tube regions which are clear of the cam regions are increased in thickness and/or stretched so that **bearing faces, drive and/or control elements are formed from the tube itself (fig.1, 7 and 8 form bearing faces since by definition a bearing is a member that supports and they also form control elements for controlling the position of the end caps 4 and 5)**; whereby the shaft has all cams in form and in position on a single piece (see fig.1; everything is assembled to form a single piece).

As to the matter of the end regions being upset by kneading, The Examiner takes Official Notice the fact that a kneading process or round kneading in metal forming art is well known practice. To change shape or size of any metal element by kneading would have been an obvious process choice.

Additionally, it is noted as evidentiary references that Ebbinghaus et al. (USP 5259268) also discloses expansion of a hollow tube to form a cam shaft and reference Harle (USP 5024294) discloses the concept of round kneading in camshafts.

Regarding claim 3, Suzuki discloses characterized in that between the cam shaft ends in a step prior to internal high pressure forming bearing faces and the eventual region where the cams are to be seated, are produced by round kneading and by reducing the diameter in this part to the desired size.

As to the matter of the end regions being upset by kneading, The Examiner takes Official Notice the fact that a kneading process or round kneading in metal forming art is well known practice. To change shape or size of any metal element by kneading would have been an obvious process choice.

Regarding claim 4, Suzuki discloses characterized in that bearing faces are produced between the cams by internal high pressure forming by expanding the tube.

Regarding claim 5, Suzuki discloses the bearer rings are hardened in a known manner prior to being placed in the internal high pressure forming tool (the bearer rings are preformed).

Regarding claim 19, Suzuki discloses the diameter of the bearer rings have wall thickness which are not constant (see fig.5, In this cross-section it is clear that the bearer rings 3a have a wall thickness that is not constant since they have some degree of curvature).

Response to Arguments

Applicant's arguments filed 12/03/2009 have been fully considered but they are not persuasive.

Applicant argues that Suzuki does not disclose the diameter of the tube in said region are greater than the diameter of the tube at the non-hollow cam regions. However, as recited in the above rejection and as best understood in light of the 112th issues raised by these amendments, Suzuki does indeed disclose the claimed subject matter. Applicant also alleges that Suzuki's patent discloses expansion of their tube only in their non-cam regions. This is not accurate, as can be seen clearly in fig.12, the tube is all one thickness until it would be internally expanded via liquid pressure (further described in columns 5 and 6 of the specification). Additionally, another example of a patent that shows similar expansions of hollow tubes is USP 5259268.

Applicant also argues that claim 19 is not shown in the references, however as recited in the above action, Suzuki clearly discloses these features.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Please note Swars (5868042) which also shows different functional elements 7 and 10 formed from the shaft itself.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to THOMAS DIAZ whose telephone number is (571)270-5461. The examiner can normally be reached on Monday-Friday 8:30am to 5:00pm..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Ridley can be reached on (571)272-6917. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas Diaz/
Examiner, Art Unit 3656

/Richard WL Ridley/
Supervisory Patent Examiner, Art Unit 3656